

Proposal for starting M.Sc Physics with Specialization in Nanoscience jointly by Department of Physics and Department of Nanoscience and Nanotechnology

Background:- Department of Nanoscience and Nanotechnology was established in the year 2016 as a natural progression in the growth and evolution of Centre for Nanoscience and Nanotechnology which was established in 2007. Centre for Nanoscience and Nanotechnology was offering M.Phil and Ph.D programs in Nanoscience and Nanotechnology and these programs were continued in the Department as well. Presently Department of Nanoscience and Nanotechnology is offering M.Phil program in Nanoscience and Nanotechnology and Ph.D program in Nanoscience and Nanotechnology. No permanent faculty is appointed in the Department and Faculty of Department of Physics, Department of Optoelectronics, Department of Chemistry, Department of Zoology, Department of Biochemistry and Department of Biotechnology are approved guides of Department of Nanoscience and Nanotechnology.

Nanoscience and Nanotechnology is an interdisciplinary field with the area of research falling under disciplines such as Physics, Chemistry, Engineering, Biology, etc. Any PG program in the area of Nanoscience and Nanotechnology should also provide a strong base in any one of the basic science subject. Otherwise students who pass out of the program will find it difficult to find employment in suitable areas. Further, all path breaking works in interdisciplinary areas have actually come out of research in frontier areas of basic science disciplines where the compartmentalisation into different subjects such as Physics and Chemistry become irrelevant or rather vague. In our University with very strong basic science Departments the possibility of offering PG programs in basic science with specialisation in interdisciplinary area as joint venture of one Basic Science Department and one Interdisciplinary Department exist. This possibility can be explored to utilise the full potential of infrastructure as well as faculty.

With this background in the present scenario, the scope for starting **MSc Physics with specialization in Nanoscience** is explored in this proposal.

Proposal for starting M.Sc. Physics (Specialization in Nanoscience)

Presently University is offering three M.SC Physics programs – (1) M.Sc Physics (Specialization in Applied Electronics) (2) M.Sc Physics (Specialization Space Physics) and (3) M.Sc Physics (Specialization in Renewable Energy). The First two programs are offered by Department of Physics while the third program is jointly offered by Department of Physics and Centre for Renewable Energy. Similarly M.Sc Chemistry with specialization in Renewable Energy is offered jointly by Department of Chemistry and Centre for Renewable Energy.

For all the three M.Sc programs offered right now, the core papers are the same for all programs. The difference between the programs are in the special papers, viz., Four theory courses, One laboratory course and One Project. The advantage of this scheme is that it ensures equivalence of the program with M.Sc Physics program of any other University or Institute in the country besides ensuring thorough basic knowledge of Physics. Further, the students are able to appear for National level examinations such as UGC-CSIR NET, GATE and JEST without any administrative problems. This ensures that students who pass out of these three programs face no issue in the context of employability and for pursuing higher studies. Considering all these advantages, it will be advantageous if the same pattern could be followed for the proposed PG program, viz., **M.Sc Physics with specialization in Nanoscience**.

M.Sc Physics with specialization in Nanoscience can be jointly offered by Department of Physics and Department of Nanoscience and Nanotechnology. The core courses in Physics will be offered through Department of Physics. Special papers (Theory, Practical and Project) will be offered through Department of Nanoscience and Nanotechnology.

Preparation of Syllabus

The syllabus of the program can be prepared jointly by Department councils of Department of Physics and Department of Nanoscience and Nanotechnology.

Strength of Students

Strength of the proposed program is 8

As of now there are 32 seats for the three M.Sc Physics programs (Applied Electronics – 17, Space Physics – 10; Renewable Energy -5). After inception of the new program 40 students will be attending the core program in Physics

Course Structure

For the proposed M.Sc Physics (Specialization in Nanoscience) Theory and Practical Courses for First two semesters are same as that presently offered for the M.Sc Physics programs with specializations in Applied Electronics, Space Physics and Renewable Energy. In the third semester Three core Physics courses and One Elective course will be similar for all these specializations. Specialized courses One theory course in semester III, two theory courses in semester IV, One laboratory course in semester IV and Project will be offered by Department of Nanoscience and Nanotechnology. The monitoring of the program as well as conduct of examinations, etc. will be jointly done by the Department councils of both Departments.

Budget Requirement

The inception of the program requires setting up of PG laboratory in Department of Nanoscience and Nanotechnology as well as recruitment of Faculty. Experts in the area of Nanoscience and Nanotechnology who have retired from various Universities and Institutes can be engaged as Visiting Professors. Such eminent faculty could contribute to the academic enrichment of the program through excellent project works and guidance. We also need Contract faculty with expertise in the area of Nanoscience and Nanotechnology who could contribute to the day to day academic activity and conduct of theory and laboratory courses. Further such new generation programs will be benefited by the academic involvement of experts working in other institutions who could be engaged as Adjunct Faculty when requirement arises.

Setting up of PG Laboratory - 50 lakhs

Infrastructure Development – 10 lakhs

Contract Faculty including Visiting Professors – 25 lakhs

Total Amount Required – Rs. 85,00, 000/- (Rupees Eighty Five Lakh only)

Fee Structure- We propose a fee structure same as that for newly stated M.SC Physics with specialization in Space Physics program which if given below

Sl.No		FEE	AMOUNT (Rs)
1		Admission Fee	105
2		Affiliation Fee	450
3		Library Fee	250
4		Lab Fee	2500
5		Stationary Fee	200
6		Internet &Audio Visual Fee	250
7		University Union Fee	60
8		Department union fee	160
9		Magazine Fee	105
10		Sports Affiliation Fee	75
11		Student Aid Fund	30
12		Student Care Fund	200
13		Medical Inspection Fee	25
14		Women Study Unit fee	15
15		Tuition Fee (per sem)	2000
16		CAUTION DEPOSIT	1000/-
		GRAND TOTAL	7425/-
<u>Examination Fee</u> Theory Paper : 150 each Practical/Project : 200 each Marklist S1,S2,S3 : 50 each Marklist S4 : 100			

